Jello Family

- Begin by accurately measuring the length, width and height of each cube. (It doesn't matter which measurement is which, just as long as you measure 3 different dimensions.)
- Measure in centimeters to the nearest tenth of a cm. (Ex. 4.1 cm)
- Record these numbers in the table below.

	Papa Cell	Mama Cell	Baby Cell
Length			
Width			
Height			

- As soon as you measure Papa, start feeding him.
- Fill your beaker half full of KOH and lower him into the solution with the spoon.
- Begin timing; he should feed for exactly 10 minutes.
- Calculate the Volume, Surface Area, and Surface Area to Volume Ratio by using the following formulas. Then fill in Table 1 below.

Volume = l x w x h
S.A. = (l x w x 2) + (l x h x 2) + (w x h x 2)
S.A. to Vol. Ratio = S.A. ÷ Vol.

Table 1:

Cell\ Measurements	Volume (cm^3)	Surface Area (cm^2)	S.A./Vol. Ratio (cm^{-1})
Papa Cell			
Mama Cell			
Baby Cell			

- Remove Papa from the feeding solution after exactly 10 minutes.
- Feed Mama and Baby together, again for exactly 10 minutes.
- You will notice that feeding the cells causes a color change. Pink represents living/fed cytoplasm and white represents dead cytoplasm.
- To determine how well Papa was fed, we will perform surgery on him. Using the plastic knife, carefully trim away all the pink Jell-O. Start thinly along one side. When you are done, you should have the largest all-white cube possible.
- Do the same for Mama and Baby after they have fed for 10 minutes.
- Now calculate the volume of the new clear cube (dead cytoplasm) for each cell.
- Fill in the new and original volumes in Table 2 below. Calculate the percentage of dead cytoplasm with the following formula:

New Volume ÷ Original Vol. x 100